Poster Presentation

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Solid-state photo-induced charge transfer in keggin based hybrid materials

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Polyoxometalate (POM) clusters, mostly anionic, are constituted of early transition metal elements in their highest oxidation states. They have been developed into an important class of inorganic materials opening new frontiers of chemical research that can readily be explored. Their ability to accept one or more electrons to generate mixed valence colored species (heteropoly blues or heteropoly browns), with structural stability under redox conditions makes them suitable to be utilized as the photochromic, electrochromic or thermochromic materials. In the recent years, the photochromic polyoxometalates have received significant importance for their applications as optical storage devices, photoelectric display, sensors, high density memory devices among their many other technological applications.
Keggin, [ZM12O40]n- contains twelve M(VI) atoms each of which can undergo reduction from M(VI) to M(V) reversibily. The reduction of the Keggin moiety can be initiated electrolytically or photochemically in presence of a solvent or with a suitable reducing agent. We have synthesized [P(R1)(R2)3][ZM12O40]-type (M = Mo, W; R1 = Me, Ph; R2 = Ph; Z = P, Si) materials which undergo photo induced charge transfer coupled with remarkable colour changes which proceed in a single crystal to single crystal (SCSC) manner. In this poster we wish to present the photoinduced crystallization of reduced Keggin Polyanions.
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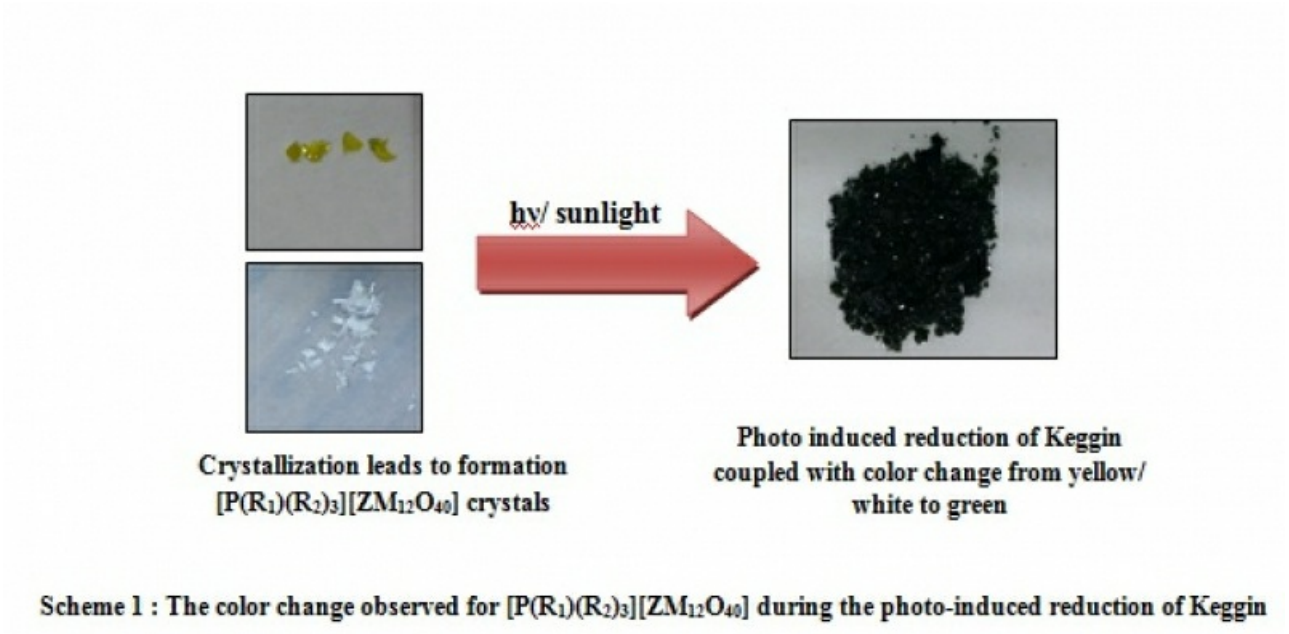

Scheme 1 : The color change observed for $[P(R_1)(R_2)_3][ZM_{12}O_{40}]$ during the photo-induced reduction of Keggin

Keywords: Keggin, photochromic, charge transfer